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Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/MS/W.No.09/WMM/Gradation/2017-18 18.09.2017

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/ /2017-18
Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386 (part-1)1963 (RA-2011)
Date of Testing	:	18.09.2017

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per MoRTh Table 400-13
53	0	0	0	100	100
45	125	125	2.5	97.5	95-100
22.4	1560	1685	33.70	66.30	60-80
11.2	1090	2775	55.50	44.50	40-60
4.75	580	3355	67.10	32.90	25-40
2.36	520	3875	77.50	22.50	15-30
0.600	505	4380	87.60	12.40	8-22
0.075	430	4810	96.20	3.80	0-8

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/MS/W.No.09/WMM/AIV/2017-18 18.09.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/ /2017-18
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS : 2386(Part -4)-1963 (RA-2011)
Date of Testing	:	18.09.2017

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	20.94	21.15	**21.05**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/MS/W.No.09/WMM/Shape.T/2017-18 18.09.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/ /2017-18
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386(Part 1) 1963 (RA 2011)
Date of Testing	:	18.09.2017

Sl.No.	Description	Result
1	Flakiness Index	11.23%
2	Elongation Index	13.30%
3	Combined Flakiness & Elongation Index	24.53%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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Job No: CCTCE/BBMP/MS/W.No.09/BC/Bitumen/2017-18 20.09.2017

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

As per IS2386 and IRC:SP:11-1984

* Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	BBMP/EE/BTP/WO/ /2017-18
* Sample ID	Pot hole filling to roads in Ward No.09.
DATE OF TESTING	20.09.2017

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	470	469.5
3. Weight of Asphalt and Mineral matter Extracted, g	30	30.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30	30.5
7. Bitumen content in %	6.00	6.10
8. Average	6.05	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
19	100.00	100.00	100
13.2	86.35	88.30	79-100
9.5	89.65	85.65	70-88
4.75	59.25	61.25	53-71
2.36	46.35	47.20	42-58
1.18	39.25	40.85	34-48
0.6	29.35	28.20	26-38
0.3	22.85	23.85	18-28
0.15	16.30	15.25	12-20
0.075	6.50	8.10	4-10

*Information is furnished by the Customer/Representative.

AEE (VRP) SD

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Job No.: CTCE/BBMP/MS/W.No.09/BC/AIV/2017-18 20.09.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/ /2017-18
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	20.09.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	80	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	302	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	20.84	20.94	**20.89**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/MS/W.No.09/BC/Shape.T/2017-18 20.09.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/ /2017-18
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	20.09.2017

Sl.No.	Description	Result
1	Flakiness Index	11.26%
2	Elongation Index	13.35%
3	Combined Flakiness & Elongation Index	24.61%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/MS/W.No.09/BC/Stripping/2017-18

20.09.2017

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	:	Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/ /2017-18
Technical Reference	:	IS: 6241
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	20.09.2017

Type of binder : 80/100

Percentage of binder used : 5.00% by wt.

Total weight of aggregate : 200 g

Total weight of binder : 10.00 g

Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.5	3.40	96.60
2	3.4		
3	3.3		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

Note:

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Job No.: CTCE/BBMP/MS/W.No.09/BC/Sp_Wa/20017-18 20.09.2017

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	: **Mr. Madhusudan,** #830, 5th Block, BEL layout, Vidyaranyapura, Bangalore - 560 097.
* Name of Work	: Filling of pot holes in Ward No.09 (Vidyaranyapura), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	: BBMP/EE/BTP/WO/ /2017-18
* Sample ID	: Hot mix plant, Bangalore
Technical Reference	: IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	: Bituminous Concrete
Date of Testing	: 20.09.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2010	2009	2011	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1256	
4	Weight of saturated surface dry aggregate in air	W_3 g	2008	2009	2010	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	769	771	754	
6	Weight of oven dried aggregate	W_4 g	2001	2002	1999	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.602	2.597	2.651	2.617
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.626	2.620	2.690	2.646
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.35%	0.35%	0.55%	0.42%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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